RAMBOLL ENVIRON

MEMO

Date **August 31, 2015**

To **Sandra Lyon, SMMUSD Superintendent**

From **Ramboll Environ US Corporation**[1]

UPDATE ON PCBs EXPOSURE SAMPLING AT MALIBU HIGH SCHOOL AND JUAN CABRILLO ELEMENTARY SCHOOL

This update is submitted to the Santa Monica – Malibu Unified School District (SMMUSD or the District) to summarize polychlorinated biphenyls (PCBs) exposure (i.e., air and surface dust) sampling that has occurred at Malibu High School (MHS) and Juan Cabrillo Elementary School (JCES) during the 2015 summer break. All work was conducted in a manner consistent with the District's *Site-Specific PCB-Related Building Materials Management, Characterization and Remediation Plan for the Library and Building E Rooms 1, 5, and 8 at Malibu High School* (MHS Specific Plan) dated July 2014 as subsequently amended in the *Supplemental Removal Information for the Library, Building E – Rooms 1, 5, and 8 and Building G – Room 506 at Malibu High School* (Supplemental) dated September 26, 2014 as approved by United States Environmental Protection Agency (USEPA) Region IX on October 31, 2014.[2] The sampling and analysis methods are the same as those documented in previous Ramboll Environ reports regarding sampling conducted at MHS and JCES.[3,4]

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Results Overview

The primary purpose of the sampling conducted during the 2015 summer break was to conclude the pilot study evaluating the effectiveness of the Best Management Practice (BMP) cleaning methods at the two schools. Ramboll Environ conducted both pre- and post-BMP annual cleaning air and surface wipe sampling. All air and surface wipe samples were below the laboratory reporting limit (non-detected) both pre- and post-BMP annual cleaning, which indicates that the District's current weekly, monthly, and annual BMP cleaning methods and schedule are more than sufficient to maintain PCBs at non-detect and/or at levels below the health-based benchmarks prescribed by USEPA on indoor surfaces and in the indoor air.

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1 As of May 1, 2015, ENVIRON International Corporation's name has been changed to Ramboll Environ US Corporation (Ramboll Environ).

2 USEPA. 2014. Letter from Jared Blumenfeld/USEPA to Sandra Lyon/SMMUSD. October 31.

3 ENVIRON. 2014. PCB Inspection and Sampling Report for Malibu High School and Juan Cabrillo Elementary School. December. Available online: http://www.smmusd.org/PublicNotices/EnvDocs/PCBInspectionSamplingReport.pdf.

4 ENVIRON. 2015. 2014/2015 Winter Break PCB Sampling Report for Malibu High School and Juan Cabrillo Elementary School for the Santa Monica-Malibu School District. March. Available online: http://www.smmusd.org/PublicNotices/EnvDocs/ENVIRONWinter1415Sampling.pdf.

A secondary part of the sampling during the 2015 summer break was to conduct exposure sampling in the 21 regularly occupied rooms[5] that had not previously been sampled for air and surface dust (18 in MHS and three in JCES as indicated in orange outlining in Figures 1 and 2), six of which are classrooms. Given the large data set collected from the other 91 regularly occupied rooms across all pre-1981 buildings at MHS and JCES, it was not expected that air and surface wipe sample results would be different than the results from sampling conducted to date, which indicate exposures are below the health-based benchmarks prescribed by USEPA. The air and surface wipe results from these 21 rooms were all below the laboratory reporting limit (non-detected) except for one surface wipe sample; that sample had reported PCB levels of 0.22 µg/100 cm^2, nearly five times lower than the USEPA benchmark value of 1 µg/100 cm^2. These results demonstrate that exposures in all regularly occupied rooms continue to be below the health-based benchmarks prescribed by USEPA. These results also demonstrate that previously collected exposure data at the two schools were representative of conditions in these 21 rooms.

The remainder of this memorandum provides additional details on the air and surface wipe sampling results summarized above.

Pilot Study

BMP cleaning has been conducted in all nine pre-1981 buildings at MHS - Building A (Building 800, Great White Shark), Building B/C (Building 900, Whale Shark), Building D (Building 100/200, Mako Shark), Building E (Blue Shark), Building F (Building 300, Thresher Shark), Building G (Building 500, Angel Shark), Building H (Cafeteria/Auditorium), Building I (Building 400, Leopard Shark), and Building J (Building 700, Old Gymnasium) as well as all six pre-1981 buildings at JCES - Building A (Administration), Building B, Building C, Building D, Building E, and Building F.

As described in the Ramboll Environ's 2014 PCB Inspection and Sampling Report for MHS and JCES,[6] a pilot study is being conducted to evaluate the effectiveness of BMPs, to evaluate the recommended frequency of BMPs, and to make adjustments in the implementation of the BMPs, if appropriate. The data collected from the 2015 summer break sampling concludes the pilot study and will inform recommendations for future activities at the two schools in the final report on our summer 2015 activities that is currently in preparation.

Below are the associated results regarding the efficacy of regular (i.e., weekly and monthly using pre-BMP sampling and annual using post-BMP cleaning) BMP cleanings, which the District has been implementing since the 2014 summer break sampling event. All air and surface wipe samples were below the laboratory reporting limit (non-detected) both pre- and post-BMP annual cleaning, which indicates that the District's current weekly, monthly, and annual BMP cleaning methods and schedule are more than sufficient to maintain PCBs at non-detected and/or at levels below the health-based benchmarks prescribed by USEPA for indoor surfaces and indoor air.

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[5] Defined as typically occupied by an individual on a daily basis, excluding weekends, for at least 4 hours per day. This information was provided for both schools by SMMUSD personnel.

[6] ENVIRON. 2014.

Preliminary[7] Air Sampling Results					
School	**BMP Cleaning**	**Number of Indoor Samples**	**Below Detection Limit (DL)[8]**	**Above DL and Below 200[9] ng/m³**	**Above 200 ng/m³**
MHS	Pre-BMP	4	4	None	None
	Post-BMP	13	13	None	None
JCES	Pre-BMP	3	3	None	None
	Post-BMP	3	3	None	None
Notes: ng/m³ = nanogram per cubic meter					

Preliminary[10] Surface Wipe Sampling Results					
School	**BMP Cleaning**	**Number of Indoor Samples**	**Below Detection Limit (DL)[11]**	**Above DL and Below 1 µg/100 cm²**	**Above 1 µg/100 cm²**
MHS	Pre-BMP	9	9	None	None
	Post-BMP	43	43	None	None
JCES	Pre-BMP	5	5	None	None
	Post-BMP	12	12	None	None
Notes: µg/100cm² = microgram per 100 square centimeters					

Additional 21 Regularly Occupied Rooms

Below are the results of the air and surface wipe sampling that was conducted in the 21 regularly occupied rooms that previously had not been sampled for air and surface dust (18 in MHS and three in JCES as indicated in orange outlining in Figures 1 and 2; these figures also present the number of previous sampling events conducted in each room since winter 2013 as many rooms have been sampled during more than one sampling event). The results below demonstrate that exposures in all regularly occupied rooms continue to be below the health-based benchmarks prescribed by USEPA, as air and surface wipe results from these 21 rooms

[7] Data are currently undergoing Level III/IV third party data validation, as described in the USEPA Contract Laboratory Program National Functional Guidelines (USEPA 2008).

[8] The laboratory reporting limit for the samples in this table ranges from 67 ng/m³ to 74 ng/m³.

[9] No concentrations were greater than the lowest USEPA's Exposure Levels for Evaluating PCBs in Indoor School Air of 200, 300, 500, 600, and 500 ng/m³ for children three to less than six years old, elementary school (six to less than 12 years old), middle school, high school, and faculty/adults, respectively. Source: USEPA, 2015. PCBs in Building Materials—Questions & Answers. July 28. Available online: http://www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/caulk/pdf/pcb_bdg_mat_qa.pdf

[10] Data are currently undergoing Level III/IV third party data validation, as described in the USEPA Contract Laboratory Program National Functional Guidelines (USEPA 2008).

[11] The laboratory reporting limit for all surface wipe samples is 0.1 µg/100 cm².

were all below the laboratory reporting limit (non-detected), with the exception of one surface wipe sample, which had reported PCB levels nearly five times lower than the USEPA benchmark value of 1 µg/100cm^2.

Preliminary[12] Air Sampling Results – Additional Regularly Occupied Rooms

School	Building	Room Placard ID	Floor Plan Room ID	Below Detection Limit (DL)[13]	Above DL and Below 200 [14] ng/m^3	Above 200 ng/m^3
MHS	A (800, Great White Shark)	802	207	1	None	None
		820	107	2	None	None
	B/C (900, Whale Shark)	904	138	1	None	None
		907	125	1	None	None
		908F	114	1	None	None
		912B	104, 105, 106	1	None	None
		912F	111	1	None	None
	D (100/200, Mako Shark)	202	202	1	None	None
		203	203	1	None	None
		204	204	1	None	None
		208	208	1	None	None
		210	210	1	None	None
		213	213	1	None	None

[12] Data are currently undergoing Level III/IV third party data validation, as described in the USEPA Contract Laboratory Program National Functional Guidelines (USEPA 2008).

[13] The laboratory reporting limit for the samples in this table ranges from 68 ng/m^3 to 72 ng/m^3.

[14] No concentrations were greater than the lowest USEPA's Exposure Levels for Evaluating PCBs in Indoor School Air of 200, 300, 500, 600, and 500 ng/m^3 for children three to less than six years old, elementary school (six to less than 12 years old), middle school, high school, and faculty/adults, respectively.

Preliminary[12] Air Sampling Results – Additional Regularly Occupied Rooms						
School	**Building**	**Room Placard ID**	**Floor Plan Room ID**	**Below Detection Limit (DL)[13]**	**Above DL and Below 200 [14] ng/m³**	**Above 200 ng/m³**
MHS	G (500, Angel Shark)	500	406S	2	None	None
		500B	406A	1	None	None
	J (700, Old Gymnasium)	703	114	1	None	None
		Boys' Locker Room	130, 140	1	None	None
		Boys' Team Room	142	1	None	None
JCES	A	Teachers' Lounge	100A	1	None	None
	B	R4	4	2	None	None
	D	R15	15	1	None	None

Notes:
ng/m³ = nanogram per cubic meter

Preliminary[15] Surface Wipe Sampling Results– Additional Regularly Occupied Rooms						
School	**Building**	**Room Placard ID**	**Floor Plan Room ID**	**Below Detection Limit (DL)[16]**	**Above DL and Below 1 µg/100 cm²**	**Above 1 µg/ 100 cm²**
MHS	A (800, Great White Shark)	802	207	3	None	None
		820	107	3	None	None

[15] Data are currently undergoing Level III/IV third party data validation, as described in the USEPA Contract Laboratory Program National Functional Guidelines (USEPA 2008).

[16] The laboratory reporting limit for all surface wipe samples is 0.1 µg/100 cm².

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Preliminary[15] Surface Wipe Sampling Results– Additional Regularly Occupied Rooms						
School	**Building**	**Room Placard ID**	**Floor Plan Room ID**	**Below Detection Limit (DL)[16]**	**Above DL and Below 1 µg/100 cm²**	**Above 1 µg/ 100 cm²**
MHS	B/C (900, Whale Shark)	904	138	4	None	None
		907	125	3	None	None
		908F	114	4	None	None
		912B	104, 105, 106	3	None	None
		912F	111	3	None	None
	D (100/200, Mako Shark)	202	202	4	None	None
		203	203	4	None	None
		204	204	4	None	None
		208	208	4	None	None
		210	210	4	None	None
		213	213	3	None	None
	G (500, Angel Shark)	500	406S	4	None	None
		500B	406A	4	None	None
	J (700, Old Gymnasium)	703	114	3	None	None
		Boys' Locker Room	130, 140	2	1 (0.22 µg/100 cm²)	None
		Boys' Team Room	142	4	None	None
JCES	A	Teachers' Lounge	100A	3	None	None
	B	R4	4	4	None	None
	D	R15	15	4	None	None

Notes:
µg/100cm² = microgram per 100 square centimeters

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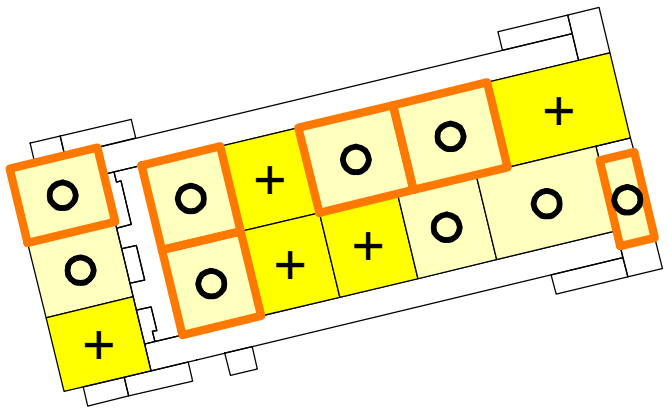
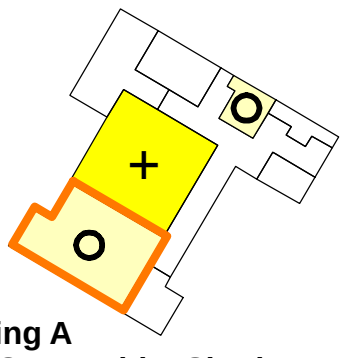
FIGURES



Building D (200, Mako Shark)



Building A
(800, Great White Shark, Basement)

Legend

Regularly Occupied Rooms (i.e., occupied by an individual for at least 4 hours per work day) not Previously Sampled Prior to August 2015

Number of Sample Events

Air	Surface Wipe	Caulking
1	1	1
2	2	
3	3	
4	4	
5	5	
6	6	
7		

Number of Samples Taken	Winter 2013-2014 Events (Phylmar Group)		Summer 2014 Events		Winter 2014-2015 Event	Summer 2015 Events			Total
	Pre-BMP*	Post-BMP	Pre-BMP	Initial Post-BMP		Pre-BMP	Post-BMP	Initial Post-Removal	
Air	21	18	51	72	26	4	33	13	238
Surface Wipe	30	8	114	249	152	9	107	70	739

*BMP = Best Management Practice Annual Cleaning

N

0 30 60

Feet

Path: Z:\01_Projects\Malibu High School\03_GIS\Bldg_Investigation_Sampling\Pillsbury\MHS_SampleCounts.mxd

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DRAFTED BY: RRH | Date: 8/28/2015

Air, Surface Wipe, and Caulking Sampling Counts at Malibu High School

Malibu High School
30215 Morning View Drive, Malibu, California

Figure 1

PROJECT: 0438524A

Legend

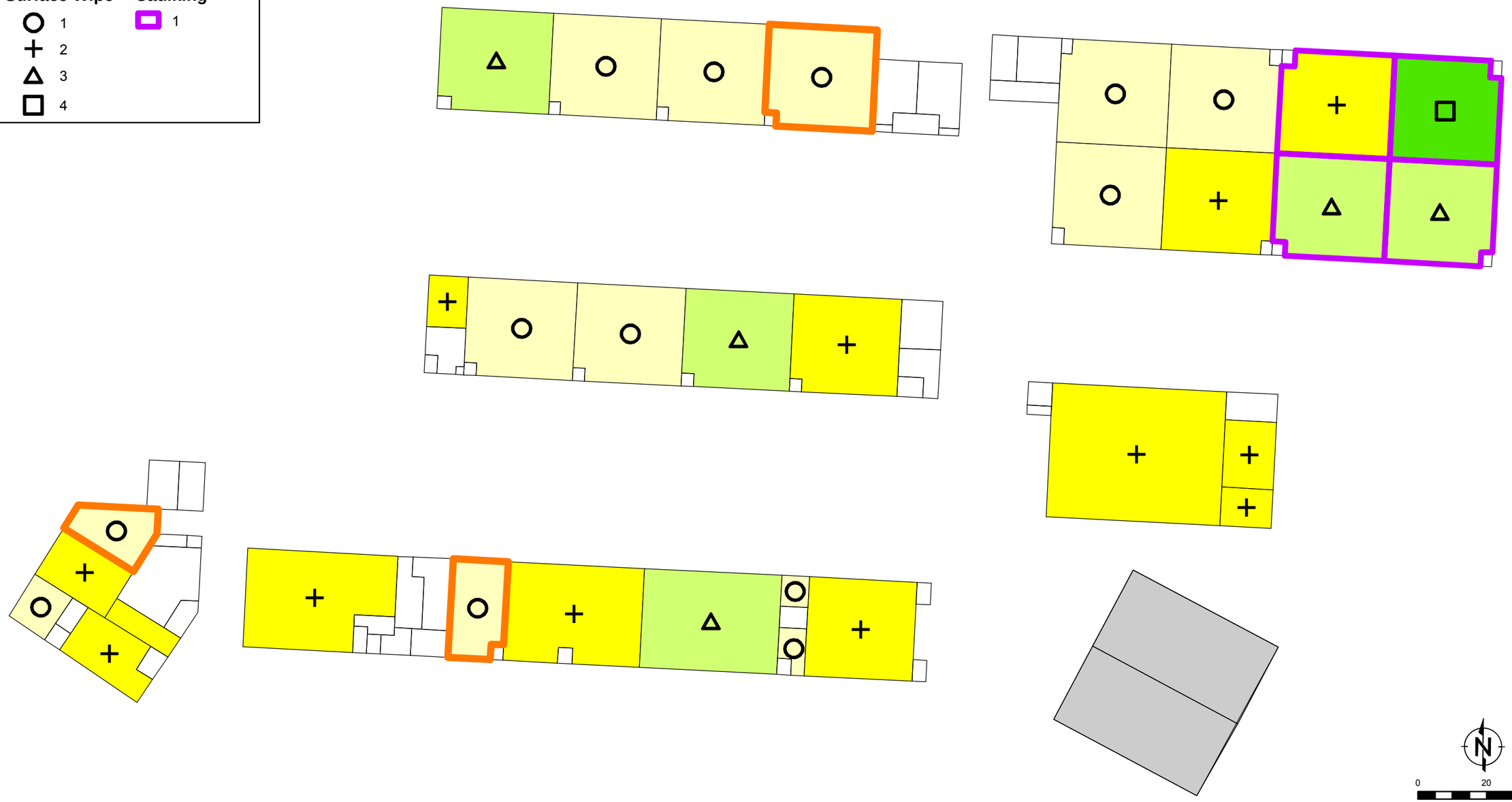
Regularly Occupied Rooms (i.e., occupied by an individual for at least 4 hours per work day) not Previously Sampled Prior to August 2015

Number of Sample Events

Air	Surface Wipe	Caulking
1	1	1
2	2	
3	3	
4	4	

Number of Samples Taken	Winter 2013-2014 Events (Phylmar Group)		Summer 2014 Events		Winter 2014-2015 Event	Summer 2015 Events			Total
	Pre-BMP*	Post-BMP	Pre-BMP	Initial Post-BMP		Pre-BMP	Post-BMP	Initial Post-Removal	
Air	0	0	11	29	8	3	7	4	62
Surface Wipe	0	0	22	84	42	5	23	24	200

*BMP = Best Management Practice Annual Cleaning



0 20 40
Feet

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DRAFTED BY: RRH | Date: 8/28/2015

Air, Surface Wipe, and Caulking Sampling Counts at Juan Cabrillo Elementary School

Juan Cabrillo Elementary School
30237 Morning View Drive, Malibu, California

Figure 2

PROJECT: 0438524A